**Supplementary Appendix S1 : Injection Technique Questionnaire and User Guide**

Having a good injection technique means that the correct dose of medication is delivered to the correct injection site to achieve the best possible health outcomes.

We’d like you to think about your own injection technique. Please answer all of the questions with the response that best fits what you do most of the time.

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| --- |
| **Questions** |
| When testing your pen / syringe (sometimes called priming or airshot), do you try a second time and then replace the needle before injecting if you still do not see a drop of liquid appear?  Yes  No  Not applicable / do not prime |
| Do you check your injection site for bumps or lumps before injecting?  Yes  No |
| What injection sites do you use?  Tummy / lower abdomen  Upper buttocks  Back of arm  Thighs  Other |
| Do you rotate your injections around different sites with each injection?  Yes  No |
| What is the length of your needles?  4mm or 5mm  6mm or 8mm  12mm or more |
| Thinking about how you put the needle into your skin, do you:  Inject straight in (90°angle)  Inject at a different angle  Use the skin lift technique (sometimes called pinch up) |
| Do you hold the needle in your skin for 10 seconds after pressing the button?  Yes  No |
| Thinking back over the past two weeks, how often did you reuse your pen/syringe needle?  Never  A few times  Most of the time  All of the time |
| Thinking back over the past two weeks, how often did you inject into lumps / bumps / red or infected areas / broken skin?  Never  A few times  Most of the time  All of the time |

**What your results mean:**

Thinking about your answers, please use the grid below to see how your injection technique measures up! Think about how much you agree with the statements in each box.

Based on where the majority of your answers fall, please refer to the advice provided below. There is no right or wrong answer… just an opportunity to look at what you do and how to improve it if needed.

|  |  |  |  |
| --- | --- | --- | --- |
| **I never reuse my needles** | **I reuse my needles a few times** | **I inject into lumps and bumps** | **I reuse my needles most of the time or all of the time** |
| **I always hold the needle in my skin for 5 or 10 seconds after pressing the button** | **My needle length is 8mm syringe or 6mm or longer pen needle or longer and I don’t use the pinch-up technique** | **I don’t always check for cleanliness / redness / bumps or lumps before injecting** | **I don’t change the needle if there is no drop of liquid when I prime my pen / syringe** |
| **I rotate my injection sites with each injection** | **My needle length is 4mm pen needle or 6mm syringe and I inject straight down** | **I don’t always rotate my injection sites with each injection** | **I don’t always hold the needle in my skin for 5 or 10 seconds** |
| **When priming pen, I always change the needle if I don’t see a drop of liquid** | **I inject in:**  **My tummy/lower abdomen**  **Upper buttocks or thighs**  **Back of arms** | **I always check my skin for cleanliness / redness / bumps or lumps before injecting** | **I never inject into lumps / bumps / red or infected areas / broken skin** |

Based on where the majority of your answers fall, please seek further help from your healthcare team as necessary:

**Red**: There are concerns about your injection technique. It is advisable that you seek help from your healthcare professional as soon as you are able

**Amber**: Your injection technique needs work. It is advisable to discuss your technique and these results with your healthcare professional

**Green**: great technique!

**The Forum for Injection Technique (FIT) provides evidence-based best practice recommendations for people with diabetes who are using injectable therapies.**

FIT report that injection technique could explain unpredictable blood glucose levels, including unexplained hypoglycaemia, glycaemic variation and above target HbA1c.

Common reasons where injection technique could be improved include:

* Injectable agents becoming frozen or too hot >30oC
* Not checking that liquid comes out of the needle before injecting
* Not lifting a skinfold when needed with longer needles
* Not rotating injection sites with every injection
* Taking the needle out before counting to 10 to make sure all the dose goes in
* Reusing needles

Recommended steps for best injection process:



